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Solubilization and acidic and receptor properties of calix[4]resorcinarenes in aqueous solutions of oxyethylated dodecanol Brij-35

Mustafina A., Elistratova Y., Amirov R., Grüner M., Konovalov A., Habicher W.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Solubilization of calix [4]resorcinarenes (Cn) with a varied length of hydrophobic substituents (R =Me, Pr, C5H11, C 7H15, C9H19, and C 11H23) in aqueous solutions of oxyethylated dodecanol Brij-35 was studied by the solubility method and 1D and 2D 1H NMR spectroscopy. The solubilization of Cn in micellar solutions of Brij-35 is caused by the formation of mixed Cn-Brij-35 aggregates and is weakened substantially with the elongation of R. It was shown by pH-metry and 1D 1H NMR spectroscopy that the receptor properties of the Cn anions toward the tetramethylammonium cations in the mixed aggregates differ substantially from those for the monomeric molecules in aqueous-organic and aqueous solutions. In particular, the binding of the tetramethylammonium cations does not result in screening of their N-Me fragments with the cyclophane cavity of the receptor. © 2005 Springer Science+Business Media, Inc.

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Keywords

Brij-35, Calix [4]resorcinarene, Complexation, Solubilization